

WHAT IS CLAIMED IS:

1. A method for inspecting a wafer, comprising:
 - 5 directing light to a center portion and an edge portion of the wafer in a single scan;
 - detecting light scattered from the center portion using a first detection channel; and
 - detecting light scattered from the edge portion using a second detection channel.
- 10 2. The method of claim 1, wherein the edge portion extends about 3 mm inward from an outer edge of the wafer.
- 15 3. The method of claim 1, wherein the center portion and the edge portion have a combined surface area approximately equal to an entire surface area of a front side of the wafer.
4. The method of claim 1, wherein the center portion and the edge portion have a combined surface area approximately equal to an entire surface area of a back side of the wafer.
- 20 5. The method of claim 1, wherein the first and second detection channels comprise different types of detectors.
6. The method of claim 1, wherein the first detection channel comprises a photo-multiplier tube.
- 25 7. The method of claim 1, wherein the first detection channel is configured to generate a single output signal at each measurement spot.
8. The method of claim 1, wherein the second detection channel comprises a segmented detector.
- 30 9. The method of claim 1, wherein the second detection channel comprises an array of photosensitive elements.

10. The method of claim 1, wherein the second detection channel is configured to separately detect different portions of the light scattered from the edge portion, the method further comprising separating light scattered from edge features of the wafer from other light scattered from the edge portion.

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11. The method of claim 1, further comprising collecting the light scattered from the center and edge portions of the wafer with a single collection channel and directing the light collected by the single collection channel to the first and second detection channels.

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12. The method of claim 1, further comprising collecting the light scattered from the edge portion of the wafer with a collector, wherein the collector provides a Fourier plane suitable for Fourier filtering of the light scattered from the edge portion.

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13. The method of claim 1, further comprising substantially preventing the light scattered from the edge portion from reaching a detector of the first detection channel.

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14. The method of claim 1, wherein the center and edge portions are located on a front side of the wafer, the method further comprising inspecting the front side of the wafer, substantially an entire backside of the wafer, and an outer edge of the wafer while the wafer is disposed in a single tool.

15. A method for inspecting an edge portion of a wafer, comprising:

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scanning the edge portion of the wafer with light, wherein the edge portion extends about 3 mm inward from an outer edge of the wafer;

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separately detecting different portions of light scattered from the edge portion;

separating light scattered from edge features in the edge portion from other light scattered from the edge portion; and

detecting defects in the edge portion of the wafer using the other light.

16. The method of claim 15, further comprising collecting the light scattered from the edge portion with a collector, wherein the collector provides a Fourier plane suitable for Fourier filtering of the light scattered from the edge portion.

5 17. A method for inspecting a wafer, comprising:

directing light to substantially an entire surface of the wafer in a single scan, wherein the entire surface comprises a center portion and an edge portion;

10 separately detecting different portions of light scattered from the wafer to generate individual output signals representative of the different portions of light;

combining the individual output signals generated at the same measurement spots during said separately detecting at the center portion of the wafer;

15 detecting defects in the center portion of the wafer using the combined output signals; and detecting defects in the edge portion of the wafer using the individual output signals.

20 18. The method of claim 17, wherein the wafer is an unpatterned wafer.

19. The method of claim 17, wherein the entire surface of the wafer comprises a front side surface of the wafer.

25 20. The method of claim 17, wherein the entire surface of the wafer comprises a back side surface of the wafer.